MITIGATED NEGATIVE DECLARATION

FOR THE

AMERICAN RIVER WATERSHED

LOWER AMERICAN RIVER FEATURES

MAYHEW DRAIN CLOSURE STRUCTURE

Project Background

The American River Watershed, Lower American River Features, Mayhew Drain Closure Structure Project (Project), is a necessary part of the previously approved American River Watershed Lower, American River Common Features, Mayhew Levee Project. The Board certified an Environmental Impact Report (EIR) for the American River Common Features Mayhew Levee Project in November, 2006. (Reclamation Board Resolution Number 06-27). This EIR discussed the impacts of the construction of the new levee to replace the existing deficient levee including a slurry wall to prevent seepage. It did not discuss the Mayhew Drain Closure Structure as the precise location and design were not known at that time.

The Mayhew Drain Closure Structure is discussed in detail in the American River Watershed, Lower American River Features, Mayhew Drain Closure Structure Environmental Assessment/Initial Study, April 2008, on which this Mitigated Negative Declaration is based.

Project Description

The closure structure at the Mayhew Drain will prevent emergency releases in the American River from backing up the Mayhew Drain and flooding neighborhoods within the City and County of Sacramento. The Project will consist of a concrete core structure, which will house downstream flap gates, redundant sluice gates, 8 feet x 8 feet box culverts and a maintenance road.

The project also includes a permanent access ramp to the levee at Rio Bravo Circle, to the west of Mayhew Drain.

Project Location

The Project is located within the interior drainage channel known as the Mayhew Drain on the south side of the lower American River at approximately River Mile 10.9 in Sacramento County, near Folsom Boulevard and Mayhew Road.

Potential Significant Impacts and Mitigation Measures

Valley Elderberry Longhorn Beetle

The Project could have a significant impact on the Valley Elderberry Longhorn Beetle, a federally listed threatened species.

To mitigate for the direct impact to 27 elderberry stems, 118 elderberry seedlings or cuttings and 194 associated native trees will be planted at a 1.29 acre site in the American River Parkway located outside the Designated Floodway. This will offset any adverse effect on the Valley Elderberry Longhorn Beetle. The mitigation plantings will be monitored per US Fish and Wildlife Service protocol for VELB.

Central Valley Steelhead, Winter-run Chinook Salmon, Central Valley Fall/Late Fall Run Chinook Salmon or their critical habitat.

The Project could have significant indirect impacts to listed fish species and their critical habitat.

The Project avoids potential indirect impact to listed fish species and their critical habitat by incorporating the following features:

- location well above the footbridge and existing flap gate
- staging area moved upstream of the Mayhew Drain
- no in-water work
- heavy equipment will not be operating downstream of the footbridge; and
- an emergency spill response plan will be added to slurry wall construction requirements.

Water Quality

The Project could have a potential significant temporary adverse impact to water quality during construction.
Mitigation measures listed below will reduce the potential impact to water quality to less than significant.

- The flow in the channel will be diverted during construction. It will be pumped around the Closure Structure site and reintroduced downstream of the Closure Structure site near the confluence with the American River.
- In order to anticipate the possibilities of a rain event in the early fall and potential high flow in the channel, the activities that will block the channel will take place first (placement of the embankment and installation of the slurry wall, removal of the embankment and slurry wall section in the channel), then the culverts will be formed and poured in place. Once this has been completed, a high flow could be

allowed through culverts, if necessary, with sufficient weather warnings.

- Prepare a spill control plan and a Storm Water Pollution Prevention Plan prior to initiation of construction activities. The SWPPP would be developed in accordance with guidance from the California Regional Water Quality Control Board, Central Valley Region. These plans would also be reviewed and approved by the Corps.
- Implement appropriate measures to prevent any debris, soil, rock, or other construction activities from getting into the water. The contractor will use appropriate measures to control dust on the project site and stockpiles.
- Properly dispose of oil or liquid wastes.
- Fuel and maintain vehicles in specified areas that are designed to capture spills.
- Inspect and maintain vehicles and equipment to prevent dripping of oil and other fluids.
- Schedule construction to avoid as much of the rainy season as possible. If rains are forecast during the construction period, erosion control measures would be implemented as described in the CRWQCB Erosion and Sediment Control Field Manual.
- Train construction personnel in storm-water pollution prevention practices.
- Re-vegetate areas cleared by construction in a timely manner to control erosion.

As disclosed in the EA/IS, the Project will not have a significant adverse impact to vegetation and wildlife, air quality, noise, vibration or traffic. Best Management Practices are required by the Project to further reduce any minor impacts.

Findings

Based on the information in the March 2008 Draft and April 2008 Final Environmental Assessment/Initial Study for the American River Watershed, Lower American River Features, Mayhew Drain Closures Structure, in comments received thereof and in the entire record, the Central Valley Flood Protection Board finds that although the Mayhew Drain Project could have a significant impact on the environment, mitigation measures have been incorporated into the Project that reduce these impacts to less than significant.

By:_____ Date:_____
Benjamin Carter, President

Approved as to legal form and sufficiency:

By:_____
Nancy Finch, Legal Cousel

STATE OF CALIFORNIA
THE RESOURCES AGENCY
THE CENTRAL VALLEY FLOOD PROTECTION BOARD
RESOLUTION NO 08-05
AMERICAN RIVER WATERSHED
LOWER AMERICAN RIVER FEATURES
MAYHEW DRAIN CLOSURE STRUCTURE

WHEREAS, the Central Valley Flood Protection Board (Board) is the nonfederal sponsor and California Environmental Quality Act (CEQA) lead agency, the U.S. Army Corps of Engineers is the federal sponsor and National Environmental Policy Act lead agency, and Sacramento Area Flood Control Agency is the local sponsor and a Responsible Agency under CEQA for the American River Watershed, Lower American River Features, Mayhew Drain Closure Structure Project, (Project);

WHEREAS, Congress authorized the American River Watershed Project in Section 101 of the Water Resources Development Act (WRDA) of 1996 and then later in Section 366 of WRDA 1999, which included the raising of the left bank levee upstream of Mayhew Drain and the construction of a closure structure at the Mayhew Drain; and

WHEREAS, the State authorized the American River Watershed Project under California Water Code Sections 12670.10 and 12670.14; and

WHEREAS, the Reclamation Board, certified an Environmental Impact Statement/Environmental Impact Report (EIS/EIR) and approved the construction of the American River Watershed Common Features Lower American River Features Mayhew Levee Project (Mayhew Levee Project) by approving Resolution Number 06-27 in November 2006, and

WHEREAS, the Mayhew Levee Project cannot function as intended without a closure structure at the Mayhew Drain; and

WHEREAS, the details of the construction and the potential environmental impacts of the closure structure had not been determined in 2006 and were therefore not included in the EIS/EIR; and

WHEREAS, a draft Environmental Assessment/Initial Study (EA/IS) was circulated for public and agency review in March, 2008 and a Mitigated Negative Declaration has been prepared for the Project; and

WHEREAS, the EA/IS, Mitigated Negative Declaration, public comments and transcript of the public hearing on which the Board's decision is based is located at the Board's office at 3310 El Camino Avenue, Room LL40, Sacramento Ca 95821.

NOW, THEREFORE, BE IT RESOLVED that the Central Valley Flood Protection Board:

1. Has considered the Mitigated Negative Declaration and finds that on the basis of the whole record, including the Draft and Final Initial Study for the Project and comments received on the draft Initial Study for the Project, there is no substantial evidence that the proposed Project may have a significant effect on the environment, and that the Mitigated Negative Declaration reflects the independent judgment and analysis of the Board; and

2. Adopts the Mitigated Negative Declaration; and

3. Adopts the Mitigation Monitoring Plan; and

4. Approves the American River Watershed, Lower American River Features, Mayhew Drain Closure Structure Project.

By:_____ Date:_____
Benjamin F. Carter
President

By:_____ Date:_____
Maureen Doherty
Secretary

MAYHEW DRAIN CLOSURE STRUCTURE EA/IS

DRAFT MITIGATION MONITORING AND REPORTING PROGRAM

I. INTRODUCTION

The CEQA, Section 21081.6(a)(1) of the Public Resources Code requires public agencies, as part of the certification of a Mitigated Negative Declaration (MND), to prepare and approve a reporting or monitoring program. This program should be structured to ensure that changes to the project that the lead agency has adopted to mitigate or avoid significant environmental impacts are carried out during project implementation.

The MMRP is intended to be used by CVFPB staff, responsible and participating agencies, and mitigation monitoring personnel during implementation of the project. The intent of the MMRP is to ensure the effective implementation and enforcement of adopted mitigation measures. The MMRP consists of a compliance checklist, Table 1 that identifies the adopted mitigation measures, the entity responsible for their implementation, the entity responsible for monitoring, and the timing of implementation. The mitigation measures presented in Table 1 are incorporated into the Proposed Project.

TABLE 1
MITIGATION MONITORING PROGRAM

Mitigation Measure	Implementing Responsibility	Monitoring Responsibility	Monitoring Timing	Verification of Compliance (Initials and Date)
3.4 VEGETATION AND WILDLIFE				
Herbaceous vegetation areas disturbed by the project will be reseeded with native grasses.	Corps Contractor	CVFPB/SAFCA	Post-Construction	
If any horticultural trees are removed during construction of the permanent access ramp they may need to be replaced in accordance with the Sacramento County Tree Ordinance if they are deemed heritage trees or significant trees.	Corps	CVFPB/SAFCA	Post-Construction	
3.5 SPECIAL STATUS SPECIES				
Protection of 22 blue elderberry stems greater than 1 inch in diameter at ground level at the Mayhew Drain Closure Structure project area by using a combination of protective fencing in the form of k-rails or portable chain link fence and worker-awareness training.	Corps	Corps Construction Inspector	During Construction	
Plant 118 elderberry seedlings or cuttings and 194 associated native trees/ shrubs at a USFWS-approved compensation area within the American River Parkway, totaling 1.29 acres. The planting of 1.29 acres of elderberry seedlings and associated natives at a Service approved compensation area within the American River Parkway would adequately offset the direct effects to 27 elderberry stems one inch or greater in diameter, including five stems accidentally removed in summer of 2007. The elderberry seedlings and associated natives would be planted in accordance with the Service's 1999 Conservation Guidelines for the Valley Elderberry Longhorn Beetle. This area would be protected in perpetuity.	Corps	CVFPB/SAFCA	Prior to Construction.	
3.6 FISHERIES				

TABLE 1 (Continued)
MITIGATION MONITORING PROGRAM

Mitigation Measure	Implementing Responsibility	Monitoring Responsibility	Monitoring Timing	Verification of Compliance (Initials and Date)
NMFS stated that the project is not likely to adversely affect steelhead and salmon provided the following mitigation measures/ design features were incorporated into the proposed project: Engineering drawings showed the Closure Structure well above (upstream) of the footbridge and existing three flap gates on the east side of the Drain. The staging area was relocated upstream of Mayhew Drain due to presence of elderberries. no in-water work is planned for the American River therefore there is no need for equipment in the outfall area A silt fence on outflow structure below footbridge is not required. The June 1 to October 15 work window for the Mayhew Drain is consistent with biological requirements of salmon and steelhead. Heavy equipment will not be operating below (downstream) of the footbridge at Mayhew Drain. An emergency spill response plan will be added to slurry wall construction requirements.	Corps	Corps	Prior to Construction	
The flow in the Mayhew Drain will be diverted during construction. It will be pumped around the Closure Structure site and reintroduced downstream of the Closure Structure site near the confluence with the American River.	Corps Contractor	Corps Construction Inspector	During Construction	
In order to anticipate the possibilities of a rain event in the early Fall and potential high flow in the channel, the activities that will block the channel will take place first (placement of the embankment and installation of the slurry wall, removal of the embankment and slurry wall section in the channel), then the culverts will be formed and poured in place. Once this has been completed, a high flow could be allowed through culverts, if necessary, with sufficient weather warnings.	Corps Contractor	Corps Construction Inspector	During Construction	

TABLE 1 (Continued)
MITIGATION MONITORING PROGRAM

Mitigation Measure	Implementing Responsibility	Monitoring Responsibility	Monitoring Timing	Verification of Compliance (Initials and Date)
3.7 AIR QUALITY				
Equipment operation, activities, or processes performed by the contractor would be in accordance with all Federal and State air emission and performance laws and standards.	Corps Contractor	Corps Construction Inspector	During Construction	
Dust particles, aerosols, and gaseous by-products from construction activities, and processing and preparation of materials would be controlled at all times, including weekends, holidays, and hours when work is not in progress. The contractor must have sufficient, competent equipment available to accomplish these tasks. Particulate control would be performed as the work proceeds and whenever a particulate nuisance or hazard occurs. The contractor would comply with all State and local visibility regulations.	Corps Contractor	Corps Construction Inspector	During Construction	
All on-street trucks hauling soil, sand, and other loose materials would be covered or would maintain at least 2 feet of freeboard. Exposed surfaces, graded areas, and storage piles would be watered periodically to reduce generation of dust.	Corps Contractor	Corps Construction Inspector	During Construction	
The Corps would also prepare a dust and particulate suppression plan and submit it to the SMAQMD for review before initiating construction activities. The plan would include as many of the following mitigation measures, as applicable, depending on the maximum actively disturbed area during construction	Corps Contractor	Corps Construction Inspector	During Construction	
Water exposed soil three times daily (55 percent mitigation factor) and additionally as required to prevent fugitive dust.				
Water soil piles three times daily (55 percent mitigation factor) and additionally as required to prevent fugitive dust.				

TABLE 1 (Continued)
MITIGATION MONITORING PROGRAM

Mitigation Measure	Implementing Responsibility	Monitoring Responsibility	Monitoring Timing	Verification of Compliance (Initials and Date)
Cover loads or maintain at least two feet of freeboard for on-street trucks hauling soil, sand, or other loose materials (1 percent mitigation factor).				
Use emulsified diesel or diesel catalysts on applicable heavy duty diesel construction equipment.				
3.8 WATER RESOURCES AND QUALITY				
Obtain a NPDES permit from the RWQCB, Central Valley Region	Corps Contractor	Corps Construction Inspector	Prior to Construction	
Prepare a Stormwater Pollution Prevention Plan (SWPPP) identifying best management practices to be used to avoid or minimize any adverse effects of construction on surface waters.	Corps Contractor	Corps Construction Inspector	Prior to Construction	
The Corps will require the contractor to prepare and implement the following:	Corps Contractor	Corps Construction Inspector	During Construction	
The flow in the channel will be diverted during construction. It will be pumped around the Closure Structure site and reintroduced downstream of the Closure Structure site near the confluence with the American River.				

TABLE 1 (Continued)
MITIGATION MONITORING PROGRAM

Mitigation Measure	Implementing Responsibility	Monitoring Responsibility	Monitoring Timing	Verification of Compliance (Initials and Date)
In order to anticipate the possibilities of a rain event in the early Fall and potential high flow in the channel, the activities that will block the channel will take place first (placement of the embankment and installation of the slurry wall, removal of the embankment and slurry wall section in the channel), then the culverts will be formed and poured in place. Once this has been completed, a high flow could be allowed through culverts, if necessary, with sufficient weather warnings.				
Implement appropriate measures to prevent any debris, soil, rock, or other construction activities from getting into the water. The contractor will use appropriate measures to control dust on the project site and stockpiles.				
Properly dispose of oil or liquid wastes.				
Fuel and maintain vehicles in specified areas that are designed to capture spills.				
Inspect and maintain vehicles and equipment to prevent dripping of oil and other fluids.				
Schedule construction to avoid as much of the rainy season as possible. If rains are forecast during the construction period, erosion control measures would be implemented as described in the RWQCB Erosion and Sediment Control Field Manual.				
Train construction personnel in stormwater pollution prevention practices.				
Revegetate areas cleared by construction in a timely manner to control erosion.				

TABLE 1 (Continued)
MITIGATION MONITORING PROGRAM

Mitigation Measure	Implementing Responsibility	Monitoring Responsibility	Monitoring Timing	Verification of Compliance (Initials and Date)
Prepare a Spill Prevention and Response Plan.	Corps Contractor	Corps Construction Inspector	Prior to Construction	
Prepare an Erosion and Sediment Control Plan.	Corps Contractor	Corps Construction Inspector	Prior to Construction	
3.9 TRAFFIC AND CIRCULATION				
The following measures would be implemented to reduce the adverse affects on traffic and circulation:	Corps Contractor	Corps Construction Inspector	During Construction	
Do not permit construction vehicles to block any roadways or private driveways.				
Provide access for emergency vehicles at all times.				
Select haul routes to avoid schools, parks, and high pedestrian use areas, when possible. Crossing guards would be provided when truck trips coincide with school hours and when haul routes cross student travel paths.				
Obey all speed limits, traffic laws, and transportation regulations during construction.				
Use signs and flaggers, as needed, to alert motorists, bicyclists, and pedestrians to avoid conflicts with construction vehicles or equipment.				

TABLE 1 (Continued)
MITIGATION MONITORING PROGRAM

Mitigation Measure	Implementing Responsibility	Monitoring Responsibility	Monitoring Timing	Verification of Compliance (Initials and Date)
Use different streets for truck entering and exiting.				
3.10 NOISE				
The following measures would be implemented to reduce the adverse effects on noise as much as possible:	Corps Contractor	Corps Construction Inspector	During Construction	
Construction activities shall be limited to between 7:00 a.m. and 6:00 p.m. Monday through Saturday. Sundays will be for equipment maintenance and slurry backfill only. This will be in accordance with the Sacramento County Noise Ordinance.				
Construction equipment noise shall be minimized during project construction by muffling and shielding intakes and exhaust on construction equipment (per the manufacturer's specifications) and by shrouding or shielding impact tools.				
Turn off all equipment, haul trucks, and worker vehicles when not in use for more than 30 minutes.				
Notify residences about the type and schedule of construction				

TABLE 1 (Continued)
MITIGATION MONITORING PROGRAM

Mitigation Measure	Implementing Responsibility	Monitoring Responsibility	Monitoring Timing	Verification of Compliance (Initials and Date)
A voluntary pre- and post construction survey will be conducted in order to assess potential architectural damage from construction vibration related to the Drain Closure Structure at each residence within 75 feet of construction activities.				
3.12 CULTURAL RESOURCES				
Prior to construction, the Corps would complete any additional investigations necessary and then consult with the signatories to the 1991 PA and the California State Historic Preservation Office for concurrence with the Corps' findings.	Corps	Corps	Prior to Construction	
An archeological monitor would be onsite for all ground-disturbing activities in the area of potential effects. If any cultural resources are found during construction, the following measures will be taken:	Corps Contractor	Corps Construction Inspector	During Construction	
If archeological deposits are found during project activities, work would be stopped pursuant to 36 CFR 800.13(b), Discoveries without Prior Planning, to determine the significance of the find and, if necessary, complete appropriate discovery procedures.				
If buried cultural resources such as chipped or ground stone, midden deposits, historic debris, building foundations, human bone, or paleontological resources are inadvertently discovered during ground-disturbing activities, work will stop in that area and within 100 feet of the find until a qualified archaeologist or paleontologist can assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with the City and other appropriate agencies.				

TABLE 1 (Continued)
MITIGATION MONITORING PROGRAM

Mitigation Measure	Implementing Responsibility	Monitoring Responsibility	Monitoring Timing	Verification of Compliance (Initials and Date)
If remains of Native American origin are discovered during Project construction, it will be necessary to comply with state laws concerning the disposition of Native American burials, which fall within the jurisdiction of the California Native American Heritage Commission (NAHC). If any human remains are discovered or recognized in any location other than a dedicated cemetery, there will be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until: 1. The Sacramento County coroner has been informed and has determined that no investigation of the cause of death is required; and 2. If the remains are of Native American origin: The descendants of the deceased Native Americans have made a recommendation to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code 5097.98; or The NAHC has been unable to identify a descendant or the descendant failed to make a recommendation within 24 hours after being notified by the commission.				

TABLE 1 (Continued)
MITIGATION MONITORING PROGRAM

Mitigation Measure	Implementing Responsibility	Monitoring Responsibility	Monitoring Timing	Verification of Compliance (Initials and Date)
3.13 HAZARDOUS AND TOXIC WASTE				
All staging areas, welding areas, or other areas slated for construction using spark-producing or intense heat-producing equipment would be cleared of dried vegetation or other materials that could serve as fire fuel. The contractor would keep these areas clear of combustible materials in order to maintain a firebreak. Any construction equipment that normally includes a spark arrester would be equipped with an arrester in good working order. This includes, but is not limited to, vehicles and heavy equipment.	Corps Contractor	Corps Construction Inspector	During Construction	

Notes:
Corps = Army Corps of Engineers
CVFPB = Central Valley Flood Protection Board
SAFCA = Sacramento Area Flood Control Agency
USFWS = U.S. Fish and Wildlife Service
NMFS = National Marine Fisheries Service
SMAQMD = Sacramento Metropolitan Air Quality Management District
NPDES = national Pollutant Discharge Elimination System
RWQCB = Regional Water Quality Control Board
SWPPP = Stormwater Pollution Prevention Plan
NAHC = Native American Heritage Commission

American River Watershed Common Features Project
February 2008

The project described in the following report is for the American Rivers Watershed Common Features Project, which includes the Mayhew Drain project.

Of particular interest to the Mayhew Drain project is the following. Page 11, last paragraph prior to the section on Reclamation Board Actions notes that the Mayhew closure structure will be discussed in a supplemental EA/IA . On page 13 in the Issues/Concerns section, the Mayhew closure structure is discussed in the first two paragraphs. Reclamation Board Actions, beginning on page 11 outlines the actions the board has taken.

The EA/IA will be final when the responses to public comment is complete. The final EA/IA will be mailed to the board at that time.

ITEM No. 10

April 2008

American River Watershed Common Features Project

Purpose:

The Project objective is to provide flood damage reduction improvements along the lower American River (downstream of Folsom Dam), the Sacramento River (downstream of the Natomas Cross Canal), and the Natomas Cross Canal. The proposed improvements include: (1) strengthening the levees to reduce the chance of failure due to seepage and levee instability; (2) raising the levees to increase flood conveyance capacity to a level of performance consistent with providing system-wide minimum levee parity; (3) providing an improved automated advance flow release warning system along the lower American River to facilitate emergency evacuation of the floodway; and (4) providing telemetered stream gages upstream of Folsom Dam to improve reservoir operational flow release criteria during flood events.

Location:

The Project includes approximately 12 miles of the north and south banks of the lower American River, immediately upstream of the confluence with the Sacramento River; approximately 12 miles of the east bank of the Sacramento River, immediately downstream of the Natomas Cross Canal (NCC); and approximately 5 miles of the north and south banks of the NCC, immediately upstream of the confluence with the Sacramento River. The Project reaches are located within the jurisdictional boundaries of Sacramento County, Sutter County, the City of Sacramento, Reclamation District No. 1000, the American River Flood Control District (ARFCD), and the Sacramento Area Flood Control Agency (SAFCA).

Description:

Project features authorized under WRDA 1996 include:

1. strengthening and raising approximately 12 miles of the Sacramento River east bank levee downstream of the NCC;
2. installing slurry walls in approximately 12 miles of the American River north and south bank levees (24 miles total), immediately upstream of the confluence with the Sacramento River;
3. modifying the existing advance flow release warning system to provide more effective real-time evacuation notification (the siren warning system originally planned for project was omitted from the revised flood management plan as of January 2002); and
4. installing three telemetered streamflow gages upstream of Folsom Dam on the middle, north, and south forks of the American River.

Project features authorized under WRDA 1999 include:

1. raising approximately 4,500 feet of the American River south bank levee immediately upstream of Mayhew Drain by approximately 2.5 feet;
2. raising approximately 5,500 feet of the American River north bank levee in the vicinity of Howe Avenue by approximately 1 foot
3. modifying approximately 5 miles of the NCC south bank levee to provide a level of performance consistent with that provided by proposed improvements to the Sacramento River east bank levee; modifying approximately 5 miles of the NCC north bank levee to provide a levee height equivalent to that provided for the NCC south bank levee;
4. installing a closure structure for the Mayhew Drain to prevent American River outflow and flood backwater at Folsom Boulevard;
5. installing approximately 1.2 miles of slurry walls in the American River north bank levee near Natomas East Main Drainage Canal (NEMDC); and
6. installing approximately 1 mile of slurry wall in the American River north bank levee near Jacobs Lane.

The Project features were reorganized during 2001 to facilitate continued funding under WRDA and administration of changes resulting from preconstruction design and engineering (see Issues/Concerns).

Construction of the WRDA 1996 American River Project features is complete except for jet grouting or other measures to seal the slurry wall around utility crossings and bridge abutments.

Funding for design of the five additional American River Project features (LAR5) authorized under WRDA 1999 was acquired under WRDA 2002.

Project reauthorization for the inclusion of the Natomas Basin features will be acquired under WRDA 2008. The 2008 reauthorization will include an additional 5.5- mile reach of the Sacramento River east bank levee immediately downstream from the WRDA 1996 reach.

Additional Project features authorized in 2004 to support FEMA certification include:

1. repairing four erosion sites along the American River totaling approximately 7,000 feet;
2. modifying approximately 600 feet of the Sacramento River East Levee near the Pioneer Reservoir to control excessive seepage; and
3. modifying approximately 4000 feet of the Sacramento River East Levee in the Pocket Area to control excessive seepage.

Sponsors:

Federal:	U.S. Army Corps of Engineers (Corps)
State:	The Reclamation Board (Board)
Local:	Sacramento Area Flood Control Agency (SAFCA)

Maintaining Entities:

In accordance with the conditions specified in the Local Project Cooperation Agreement (LPCA) (July 1998) between the Board and SAFCA as the local project sponsor, SAFCA is responsible for operation, maintenance, repair, rehabilitation, and replacement (OMRR&R) of the authorized Project features. SAFCA will contract OMRR&R responsibilities to the existing levee maintenance agencies, which include RD 1000 for the Sacramento River Project reach and ARFCD for the American River Project reach. RD 1001 is expected to execute a LPCA directly with the Board for OMRR&R responsibilities on the NCC north bank levee.

Elected Representatives:

Federal:

- House of Representatives:
  Dan Lundgren (District 3), John Doolittle (District 4), and Doris O. Matsui (District 5)

- Senate:
  Barbara Boxer and Dianne Feinstein

State:

- Senate:
  Sam Aanestad (District 4), Michael Machado (District 5), and Darrell Steinberg (District 6)

- Assembly:
  Roger Niello (District 5), Lois Wolk (District 8), Darrell Steinberg (District 9), and Alan Nakanishi (District 10)

Authorization:

Federal:

WRDA 1986 (Public Law 99-662): Section 902 specifies procedures for adjusting the federal spending limit of cost-shared flood damage reduction projects.

WRDA 1996 (PL 104-303): Authorized the Project features identified in the Corps' Supplemental Information Report (SIR) (1996) at a total cost of $56.9 million.

WRDA 1999 (PL 105-53) reauthorized the Project features identified in WRDA 1996 and authorized seven additional Project features identified in Corps' Post Authorization Change Report (January 18, 2000), at a total cost of $91.9 million.

PL 108-137 reauthorized design and construction of American River Project features, and design of all Natomas Project features as described in the Corps' Post Authorization Change Report (March 2002), at a total cost of $205 million.

WRDA 2010 (Pending): Reauthorize design and construction of all Natomas Project features and authorize an additional Natomas Project feature that consists of strengthening approximately 5.5 miles of the Sacramento River east bank levee from

Powerline Road to NEMDC. Reauthorize the American River Common Features Project to include the Pocket area and all American River levees to provide a system-wide 200-yr level of protection at a total project cost to be determined.

State:

Water Code section 8617 requires the State, acting through the Board, to acquire all lands, easements, and rights of way necessary for construction of federal cost-shared flood control projects.

Water Code section 12585.5 authorizes the State, acting through the Board, to fund 70 percent of nonfederal project cost, with the remaining 30 percent funded by local sponsor(s), in accordance with Section 105 of WRDA 1986.

Water Code section 12657 requires the State, acting through the Board, to provide assurances of local cooperation for cost-shared flood control projects in the Sacramento and San Joaquin Valley.

Water Code section 12670. authorizes WRDA 1996 Project features at an estimated cost to the State of the sum that may be appropriated by the Legislature for State participation, upon the recommendation and advice of the Department of Water Resources (DWR) or the Board.

Water Code section 12670.12 authorizes SAFCA participation in nonfederal funding requirements of WRDA 1996 Project features.

Water Code section 12670.14 authorizes WRDA 1999 Project features at an estimated cost to the State of the sum that may be appropriated by the Legislature for State participation, upon the recommendation and advice of DWR or the Board.

Water Code section 12670.16 authorizes SAFCA to be reimbursed pursuant to Water Code Section 12585.5 and
authorizes SAFCA to operate, maintain, repair, replace, and rehabilitate constructed flood control improvements.

Engineering and Environmental Documents:

American River Watershed Feasibility Report, Corps (1991)
SIR, Corps and Board (March 1996)
Part I Main Report
Part II Final Supplemental Environmental Impact Statement/Environmental Impact Report
Draft EA/Supplemental EIR for the North Bank Slurry Wall, Corps and Board, (April 1998)
Final EA/IS for the South Bank Slurry Wall and the Flood Warning System Modification, Corps and Board (August 1999)
Draft Second Addendum to the SIR, Corps (February 7, 2001)
Draft Environmental Assessment/Initial Study (EA/IS), Corps and Board (May 2001)
Final EA/IS, Corps and Board (March 2002)

Draft EA/IS for the FEMA Erosion Sites RM 10.2R, RM 7.0R, RM 6.9L, RM 6.4L, Corps and Board (May 2004)
Final EA/IS for the FEMA Erosion Sites RM 10.2R, RM 7.0R, RM 6.9L, RM 6.4L, Corps and Board (May 2004)
Final EAS/IS for Pioneer Reservoir (May 2006)
Final EA/IS for Pocket Geotech (June 2006)
Final EIS/EIR for Mayhew Levee Raise (November 2006)

Status of Design, Real Estate Acquisition, and Construction:

Lower American River Contracts (WRDA 1996)

North Bank Levee Strengthening - Howe Avenue to Watt Avenue
Completed: November 1998

North Bank Levee Strengthening - Remainder
Completed: March 2002

South Bank Levee Strengthening - Contract 1 (upstream of H Street)
Completed: March 2002

South Bank Levee Strengthening - Contract 2 (downstream of H Street)
Completed: March 2002

Jet Grouting Utilities in North and South Bank Levees
Contract 1/Testing and Production Sites
Completed: February 2003

Jet Grouting Utilities in North and South Bank Levees
Contract 2/Remaining Production Sites
Status: Contract Cancelled

Alternative Methods "A" Contract
Completed: December 2003

RM 10.2R, RM 7.0R, RM 6.9L, RM 6.4L
Completed: December 2005

FEMA Erosion Sites Repairs
Design: Spring 2004
Completed: December 2004

Pioneer Reservoir Contrct
Design: Summer 2005
Completed: Fall 2006

Pocket Geotechnical Remediation Contract
Exploration: Spring 2005
Design: Fall 2005

Completed: Fall 2006

Natomas GRR Exploration Contract
Exploration: Spring 2007

Mayhew Levee Raise
Design: Spring 2007
Construction: Spring through November 2008

Remaining Sites (WRDA 1996) Contract
Exploration: Spring/Summer 2007
Design: 2007 & 2008
Construction: 2008 & 2009

WRDA 99 Sites Contract
Design Fall 2007 through Summer 2008
Construction Fall 2008 through Fall 2009

Sacramento River (Natomas Basin) Contracts (WRDA 2010)

Sacramento River East Bank Levee Raising and Strengthening North of Powerline Road (WRDA 1996)
Sacramento River East Bank Levee Raising and Strengthening South of Powerline Road (WRDA 2010)
Design: Spring 2011
Construction: Spring 2012

1. Estimated costs:

The Project was federally authorized under WRDA 1996 (Section 101), at a total cost of $56.9 million, with a spending cap of $66.5 million, in accordance with Section 902 of WRDA 1986. The PCA and LPCA were executed in July 1998 and incorporated by reference in the Section 902 spending cap of $66.5 million.

Reauthorization under WRDA 1999 (Section 336) added additional features to the scope and increased the total federally authorized project cost to $91.9 million, with a Section 902 spending cap of approximately $120.6 million. However, project costs were increased shortly after reauthorization to $118.3 million, as published in the Draft Second Addendum (February 2001) to the SIR.

2. Further factors that increased project costs:

The scope of the repairs needed to accomplish the authorized level of flood protection for the Sacramento region under the American River Common Features Project was greatly affected by the flood of 1997. The best engineering knowledge prior to the 1997 flood placed the Lower American River 100-year flow at a rate of 115,000 cubic feet per second (CFS). The data gained from the 1997 flood caused the engineering community to reevaluate the likely quantity of water possible in a 100-year event on the Lower American River. The Corps used the new data to generate a new 100-year flow rate prediction of 145,000 cfs. This new flow level resulted in a redesign of the American River Common Features Project to produce a more robust levee repair. The second engineering insight gained from the 1997 flood was that through-seepage alone was not the only contributor to undermine levee stability. The 1997 flood indicated that deep underseepage could also cause catastrophic failure of levees due to reducing the stability at the landside toe. Repair measures for the American River levees would need to extend beyond the proposed 30-to-40-foot deep slurry walls to much deeper 70-to 80-foot slurry walls. This significantly affected the scope of the repairs for the Project. The added repair scope for the higher flow and underseepage greatly affected the scope of the repairs for the Project. The added repair scope for the higher flow and underseepage greatly increased the Project cost.

Further factors that increased Project Costs were attributed to design and construction changes associated with deep slurry wall construction, the use of jet grouting to seal the slurry wall around utility crossings and bridge abutments, and the additional expense of administering multiple contracts to accommodate right-of-way availability and environmental constraints that limit the duration of the seasonal construction period.

In February 2002, the Corps announced significant cost increases associated with the two jet grout construction contracts. The original estimate was $21 million - $11 million for Contract 1 and $10 million for Contract 2. The February 2002 estimate is $66 million - $13 million awarded for Contract 1 and $53 million estimated for Contract 2. The cost increases were attributed to mobilization/demobilization for the 28 sites, disposal of jet grout waste, and cement.

In December 2003, the Corps received authorization under PL 108-37 to increase the Project's maximum total cost to $205 million with a Section 902 cost limit of $246 million. Adjusted for 2008 price levels, the Section 902 cost limit is now $269.9 million. This includes construction of all WRDA 1996 and WRDA 1999 features along the American River and design of all Natomas Project features along the Sacramento River and the NCC. The Corps will submit an additional Decision Document for reauthorization under WRDA 2010 at a total cost that is yet to be determined for construction of all currently authorized Natomas Project features, and any additional work that may be required to provide 200-year protection on the Sacramento River East Levee below the confluence with the American River to the City of Freeport.

The current cost share summary for design and construction of all project features is presented in the table below. The breakdowns are approximations derived from Corps data.

	Previous (as of November 2001)	Current (as of November 2007)	Projected*** (as of June 2009)
Total Cost	$ 120,600,000	$ 205,000,000	$ 288,900,000
Construction Cost	$ 93,528,000	$ 166,270,000	$ 248,460,000
PED*	$ 23,000,000	$ 30,040,000	$ 29,250,000
LERRDs**	$ 3,140,000	$ 6,210,000	$ 8,000,000
Environ. Mitigation	$ 932,000	$ 1,730,000	$ 2,440,000
Cultural Resources	$ 0	$ 750,000	$ 750,000

*Preconstruction Engineering and Design.
**Lands, easements, rights of way, relocations, and disposal costs.
***Projected costs are preliminary as the Corps is still developing feasibility level costs for the Natomas Project features.

Cost Allocations:

The current and previous cost allocations are summarized in the table below. Costs are subject to a final project audit to verify cost allocations in accordance with contract documents.

	Previous (as of Nov. 2001)	Current (as of November 2007)	Projected WRDA 2010 Cost
Federal Share:	$ 90,450,000	$153,750,000	$ 216,750,000
State Share:	$ 21,105,000	$ 35,875,000	$ 50,575,000
Local Share:	$ 9,045,000	$ 15,375,000	$ 21,675,000

Funding Status:

Federal, State, and local funding are summarized in the table below by State Fiscal Year. As the nonfederal sponsor, the State share is allocated from the General Fund and local share is allocated under Reimbursement Authority. Future funding requirements are contingent on redesign and reprioritization of the American River WRDA 1996 Remaining Sites and finalizing the remedial design for foundation seepage along the Sacramento River east bank levee prior to project reauthorization under WRDA 2010.

	FEDERAL	NON-FEDERAL	
		General Fund	Reimbursements
	($1,000)	($1,000)	($1,000)
FY 1997-98	$ 9,600	$ 2,200	$ 1,000
FY 1998-99	$32,700	$ 7,630	$ 3,270
FY 1999-00	$ 7,500	$ 1,750	$ 750
FY 2000-01	$28,950	$ 7,040	$ 2,855
FY 2002-03	$16,098	$ 3,763	$ 1,613
FY 2004-05	$22,270	$ 5,285	$ 2,227
FY 2005-06	$ 15,327	$ 3,609	$ 1,500
FY 2006-07	$ 27,600	$ 6,440	$ 2,760

Agreements:

Responsibility for design, administration, and funding of the Project is shared among the federal sponsor (the Corps) the nonfederal sponsor (the Board) and the local sponsor (SAFCA). SAFCA is structured as a Joint Powers Agreement among the City of Sacramento, the County of Sacramento, RD 1000, ARFCD, the County of Sutter, Sacramento County Water Agency, and Sutter County Water Agency. In accordance with the PCA between the Corps and the Board, the Corps is responsible for the federal share of 75 percent and the Board is responsible for the nonfederal share of 25 percent. In accordance with the LPCA between the Board and SAFCA, the 25 percent nonfederal cost is distributed 70 percent State and 30 percent local.

Since RD 1001 is not a member agency of SAFCA and SAFCA's jurisdiction does not include lands within RD 1001, it is proposed that RD 1001 will execute a separate LPCA directly with the Board for OMRR&R responsibilities of the NCC north bank levee improvements.

Environmental Review:

The Board is the designated lead agency responsible for ensuring compliance with the provisions of the California Environmental Quality Act (CEQA) for this Project. The Corps is the federal lead agency responsible for ensuring compliance with the provisions of the National Environmental Policy Act (NEPA).

In 1991, the Corps completed the American River Watershed Investigation Feasibility Report, which included, as Part II of the report, a comprehensive Environmental Impact Study/Environmental Impact Report (EIS/EIR) for the project, as then proposed. In 1996, the Corps prepared a SIR to develop and assess a range of remedial design alternatives and to recommend a preferred plan of comprehensive flood damage reduction consistent with Corps objectives governing National Economic Development (NED) projects and environmental preservation and mitigation. The SIR was submitted for Congressional approval without Corps endorsement of the recommended NED plan, due to extreme public opposition to the potential environmental impact of proposed detention within an environmentally sensitive area. The Corps proposed, as an interim measure that would increase the level of flood control protection prior to resolving the environmental issues associated with the recommended NED plan, that the features

common to the three plans be approved for construction as a federal cost-shared project. The Common Features Project was subsequently federally authorized under WRDA 1996. The State authorized the Common Features Project under Water Code section 12670.10.

A Record of Decision for the Common Features Project was signed on July 1, 1997.

Several subsequent environmental documents were prepared for elements of the Common Features Project as designs were finalized.

An EA/Supplemental EIR for construction on the right (north) bank slurry wall along the American River was completed in June 1998 and the Notice of Determination (NOD) was filed on May 18, 1998.

The Board adopted the EA/IS for the left (south) bank slurry wall and flood warning system in June 1999 and the Corps signed the Finding Of No Significant Impact (FONSI) for these features in August 1999. This report served as the environmental documentation for the two Jet Grout contracts authorized under WRDA 1996 and reauthorized under WRDA 1999.

A Draft EA/IS was prepared in May 2001 to evaluate the construction impact of the WRDA 1999 Project features along the American River. These included the five Lower American River features (levee improvements at four additional sites along the north and south bank levees, and the installation of the Mayhew Drain closure structure). A large number of public comments were received regarding several of the proposed levee improvement sites. The issues generated by the comments resulted in a delay of approval of the WRDA 1999 features.

The Final EA/IS and Negative Declaration for the WRDA 1999 sites, except the Mayhew Levee and Closure Structure, was adopted by the Board in November 2006. A separate EIS/EIR for the Mayhew Levee Project was certified by the Board in November 2006. The Mayhew Drain Closure Structure will be analyzed in a separate EA/IS in 2008.

A draft EA/IS and Mitigated Negative Declaration (MND) was prepared in April 2004 to evaluate the environmental impacts of the Federal Emergency Management Agency (FEMA) erosion site repairs at RM 10.2R, RM 7.0R, RM 6.9L, and RM 6.4L, an addition to the WRDA 1996 and WRDA 1999 project features along the American River. A notice of completion was prepared and submitted with the draft EA/IS and MND to the State Clearinghouse for the 30-day public review period on April 19, 2004. A copy was submitted to the Sacramento Public Library for public review availability. A legal notice of document availability was submitted to the Sacramento Bee on April 16, 2004. This notice was published in the April 19, 2004 issue.

Pioneer An EA/IS with a Mitigated Negative Declaration (SCH 2006042055) for the Pioneer Reservoir Seepage Berm Project was circulated for public SCH review and was approved by the Board on May 19, 2006. This project remedies a seepage problem at

the Pioneer Reservoir. A Notice of Determination was filed with the Clearinghouse on may 25, 2006.
Pocket An EA/IS and Mitigated Negative Declaration for the American River Common Features Pocket Area Geotechnical Element Reaches 2 and 9 (SCH 2006052089)and approved the MND and the project in June 2006. A notice of Determination was filed with the Clearinghouse on June 19, 2006. Reach 9 was later constructed under the South Sacramento County Streams project.

Mayhew An EIS/EIR for the construction of the levee was circulated for public review in November 2005. The EIR (SCH 2005052067) was certified by the Board in November 2006. The Closure Structure will be discussed in a Supplemental EA/IS in 2008. .

Reclamation Board Actions:

May 15, 1998	Board approved Resolution No. 98-09 which certified the Final EIR for the Common Features of the American River Watershed Project, adopted findings based on that final EIR, and approved the Common Features Project.
May 15, 1998	Board approved Resolution No. 98-10, delegating authority to the General Manager to complete negotiations and sign the LPCA and PCA for the Common Features Project.
June 19, 1998	Board approved Resolution No. 98-16 certifying the SEIR for the American River Watershed (Common Features) Project – North Bank Slurry Wall and adopted findings based on the Supplemental EIR.
June 1999	Board approved Resolution No. 99-10 certifying the SEIR for the American River (Common Features) Project – South Bank Slurry Wall and Flood Warning System and adopted findings based on the SEIR.
November 2001	Board approved Resolution No. 01-12 requesting authorization to adopt the federally authorized Section 902 spending cap of $120.6 million.
May 2002	Presentation to Board for approval of Resolution No. 02-06 stating intent to continue participation as the nonfederal sponsor of the American River Common Features Project as described in the Second Addendum to the SIR (March 2002).
May 2004	Board approved Resolution No. 04-02 (1) adopting the Mitigated Negative Declaration for the American River Watershed Common Features Project, Lower American River FEMA Erosion Sites Repairs at RM 10.2R, 7.0R, 6.9L, 6.4L and (2) approving the FEMA Erosion Sites Repairs.

June 2004	Board approved Resolution No. 04-15 requesting authorization to adopt the federally authorized Section 902 spending cap of $246 million.
July 2005	Board approved Resolution No. 05-08 (1) authorizing the Board to sign Amendment No. 2 to the LPCA to include WRDA 99 features and to increase the non-federal share of the total project cost in accordance with SACCR No. 2 and (2) authorizing the Board to sign Amendment No. 2 to the PCA to include WRDA 99 features and to increase the total project cost in accordance with SACCR No. 2.
February 2006	Board approved Resolution No. 06-06 (1) authorizing the Board to amend the LPCA to accept funds from SAFCA for the purpose of transferring such funds to the Corps as advancement for the federal share of costs and (2) authorizing the Board to amend the PCA to advance funds to the Corps for the federal share of Project costs and (3) directing DWR staff to complete negotiations of the LPCA amendment with SAFCA and (4) directing DWR staff to complete negotiations of the PCA amendment with the Corps and (5) directing the President or Secretary of the Board to sign Amendment No. 3 to the LPCA and Amendment No. 3 to the PCA to advance funds to the Corps.
May 2006	Board approved Resolution No. 06-16 (1) adopting the Mitigated Negative Declaration for the American River Watershed Common Features Project, Pioneer Reservoir Contract and (2) approving the American River Watershed Common Features Project, Pioneer Reservoir Contract
June 2006	Board approved Resolution No. 06-22 (1) adopting the Mitigated Negative Declaration for the American River Watershed Common Features Project, Pocket Geotechnical Contract and (2) approving the American River Watershed Common Features Project, Pocket Geotechnical Contract
November 2006	Board approved Resolution No. 06-27 (1) certifying the EIR, adopting the Findings including Findings of Overriding Considerations and adopting the mitigation monitoring plan for the American River Watershed Common Features Project, Mayhew Levee Raise Contract and (2) approving the American River Watershed Common Features Project, Mayhew Levee Raise Contract
January 2007	Board approved a letter to the Corps requesting that the work being conducted by SAFCA on the Natomas Cross Canal be considered for Section 104 credit under the American River Common Features Project.

June 2007	Board approved Resolution No. 07-01 (1) adopting an addendum to the Final EIR for the American River Watershed Common Features Project, Mayhew Levee Raise Contract and (2) approving construction of an additional 150 feet of slurry wall under the Mayhew Drain and a seepage berm at the location of three sewer pipes as part of the American River Watershed Common Features Project, Mayhew Levee Raise Contract
January 2008	Board approved a letter to the Corps requesting that the work being conducted by SAFCA on the Natomas Cross Canal and the East Levee of the Sacramento River be considered for Section 104 credit under the American River Common Features Project.

Issues/Concerns:

Lower American River North and South Bank Levee Raising and Strengthening and Mayhew Drain Closure Structure (WRDA 1999): Due to the concern over impacts to heritage oak trees and objections by the Butterfield-Riviera East Community Association (BRECA) with respect to the proposed levee design upstream of Mayhew Drain, the Mayhew Levee Raise prepared an Environmental Impact Statement/Environmental Impact Report (EIS/EIR) to document the impacts of the various alternatives. A Draft EIS/EIR wassubmitted for public review in November 2005. The Reclamation Board certified the Final EIS/EIR under the California Environmental Quality Act (CEQA) in November 2006. Transplant of impacted Elderberry shrubs was performed in February 2006. Construction of the Mayhew Levee Raise will begin in Spring of 2008 and be completed in November 2008.

The County has raised concerns about hydraulic impacts from the Closure Structure. These are being addressed by the Corps. A separate supplemental environmental document will be prepared for the Closure Structure.

Two of the seven WRDA 1999 project features will be combined with the Sacramento River east bank levee project feature (authorized under WRDA 1996) for reauthorization under WRDA 2008 as the Natomas Basin Features. An additional feature will be included for authorization, which includes strengthening approximately 5.5 miles of Sacramento River east bank levee from Powerline Road to NEMDC.

WRDA 1996 Remaining Sites Contract: The remaining eighteen sites to be completed under WRDA 1996 will either be fixed using alternative methods or jet grout. Some of the sites exhibit conditions of limited accessibility and may only be fixed by jet grout. The Corps expects to have the individual sites under each contract identified by May 2008.

WRDA 1999 Levee Raises Contract: The levees at Jacob's Lane, Howe Avenue, and the Natomas East Main Drainage Canal require widening and moderate raises. Exploration and design of these repairs began in Fall 2007 with construction contracts scheduled to be awarded in late 2008.

Natomas Basin Features (WRDA 2010): In 2001, preconstruction geotechnical exploration along the east bank levee of the Sacramento River revealed foundation seepage problems not previously identified in the Feasibility Report (1991) or the SIR (1996). The potential for significant foundation seepage was identified as an engineering deficiency that required remediation along the authorized 12-mile reach of the Sacramento River, the 5.5 mile reach immediately downstream (Powerline Road to NEMDC), the Pocket Area (downstream of William Land Municipal Golf Course), and the NCC north and south bank levees. The time required to more accurately assess the scope of the problem postponed authorization of the additional seepage remedial features under WRDA from 2002 until 2010.

Preliminary investigation suggests that construction will be difficult due to restrictive rights of way, extensive relocations, limited staging areas, and limited access/haul routes within the heavily urbanized Natomas area within Sacramento. Homeowners located waterside of the east bank Garden Highway levee are concerned about project impacts to their properties. Additionally, the construction schedule will be constrained by environmental protocol governing Swainson's hawk and giant garter snake habitat. The restricted construction season is currently expected to lengthen the total duration of construction to three years from 20012 to 2016.

The Natomas Basin Project features are subject to similar design constraints but are being designed and managed as separate project elements.

Sacramento River East Bank Levee and Berm Raising North of Powerline Road (WRDA 1996): In the original Problem Identification stage, Corps identified embankment seepage as an engineering deficiency that required remediation. The three original design alternatives included a seepage berm, a cutoff wall, and a combination seepage berm/cutoff wall. The identification of foundation seepage as an additional deficiency expanded the project cost by increasing required land acquisition for a berm design and the required cutoff depth for a slurry wall design. In an attempt to limit project impact in a heavily urbanized area, Corps reconsidered the use of relief wells as a design option. Relief wells, which were originally rejected by the Corps for long-term unreliability and intensive maintenance requirements, are being evaluated as a potentially more cost effective option than either slurry walls, which will require expensive depths of 80 feet or greater in selected reaches, or seepage berms, which will require the expense of land acquisition as well as the embankment material required to meet minimum Corps' design width of 150 feet. A supplementary drilling program was completed in October 2001 to further define the subsurface stratigraphy. The information will be used to refine the design alternatives and select a recommended design or combination of designs appropriate for each reach. The design alternatives and the recommended design will be described in the Final DD.

Sacramento River East Bank Levee and Berm Raising South of Powerline Road (WRDA 1996): The Corps is analyzing the 5.5 miles of the levee along the east bank of the Sacramento River between Powerline Road and the NEMDC for the same seepage and stability issues identified in the levee reach north of Powerline Road. Additional drilling may be scheduled, if required.

NCC Levee Raising and Strengthening (WRDA 1999/WRDA 2010): The NCC south

bank levee is subject to the same seepage and stability issues as the Sacramento River east bank levee. Final design is contingent upon incorporating the supplementary geotechnical information derived from the October 2001 drilling program. Additional drilling may be scheduled, if required.

Common Features General Re-evaluation Report: A Notice of Preparation of an Environmental Impact Report for Natomas Basin Project features was submitted to the State Clearing House on July 11, 2005. A revised NOP for the preparation of a joint EIS/EIR will be prepared for the Natomas GRR in 2008..
The previously identified level of protection for the downtown and Pocket portions of Sacramento has now been drawn into question. The Corps latest risk and uncertainty analysis identifies the Pocket Levee as having a conditional non-exceedance point of an approximately 88-yr level of protection. The Corps has expanded the regional extent of the GRR to incorporate the entire Sacramento area threatened by the American and Sacramento Rivers (excluding West Sacramento – that is to be studied under a separate effort) in a systemwide
analysis. This effort is on course to be complete and yield a Chief's Report for authorization in WRDA 2010.

Project Engineer:

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Attachment